



Products For Serving Special Populations

Developed by the
California Community College
Special Populations Project



Purposes of the Project

- Conduct research on the needs of special population students in Career and Technical Education
- Identify strategies for addressing those needs
- Provide resources and support to practitioners who are serving special population students.

Target Audience

- Practitioners
- Individuals responsible for the professional development of practitioners
- Both secondary and postsecondary levels

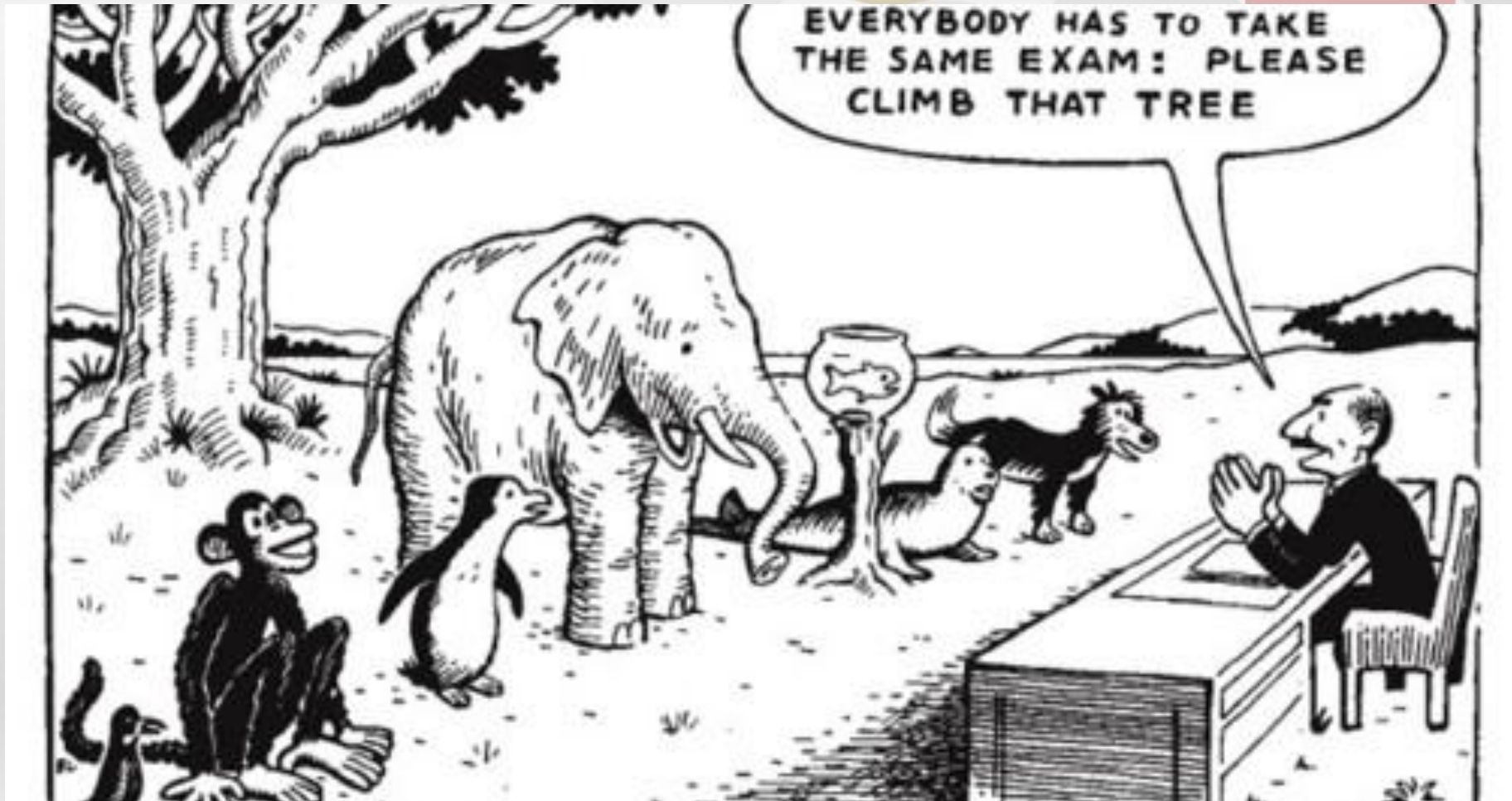


How do we determine what products to develop?

First, a focus on Perkins Special Population Groups

- Economically Disadvantaged
- Single Parents
- Displaced Homemakers
- Limited English Proficient
- Disabled
- Nontraditional Students – those pursuing training in areas nontraditional to their gender

We realize that different populations need different strategies

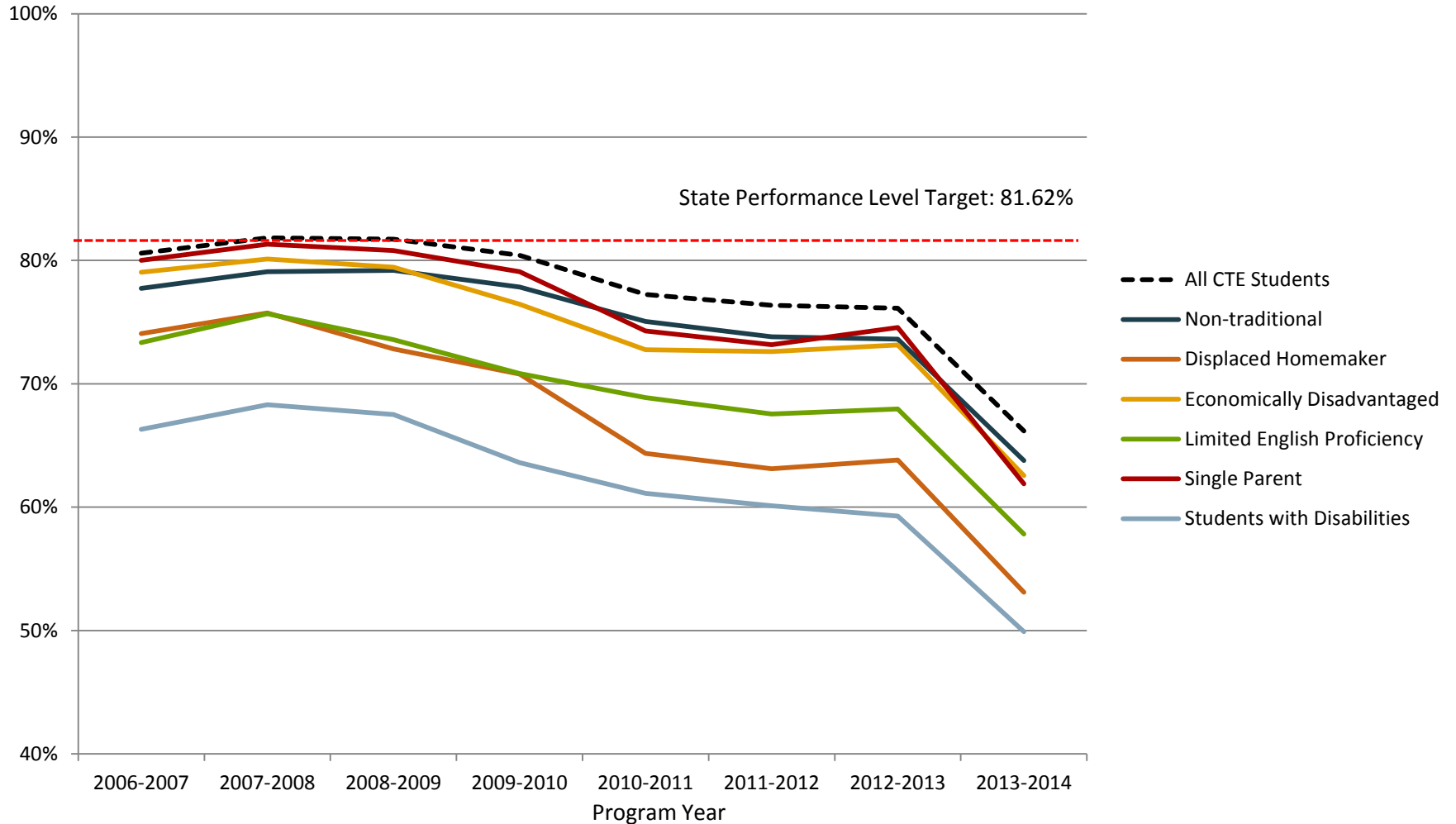


We use a data driven approach

- Primarily we use California's Postsecondary Perkins Data

Placement Data are revealing

(Perkins IV Core Indicator 4P1 - All TOP Codes)



The first product focused on all the special population groups

Make a Difference for Special Population Students
Practical Tips and Tools for Educators



Resources for All Categories of Special Population Students

California Community College Special Populations Collaborative
www.cccspecialpopulations.org

California's Career and Technical Education Joint Special Populations Advisory Committee
www.jspac.org

National Alliance for Partnerships to Equity
www.napequity.org

www.stemequitypipeline.org



You can make a real difference in a student's educational experience and future success, especially for those who are members of special populations. Defined in the Carl D. Perkins Career and Technical Education Act, special populations include:

- Economically disadvantaged, including foster children
- Single parents, including single pregnant women
- Displaced homemakers
- Limited English proficient
- Disabled
- Students training for careers nontraditional to their gender

Schools that receive Perkins funding must offer specialized Career Technical Education (CTE) programs and services to support the success of special population students. To help you serve special population students and develop activities that fulfill the Perkins requirements, this resource offers easy and effective tactics employed statewide and nationally. Please use these strategies to help your special population students overcome barriers, stay on track to reach their CTE goals and ultimately impact their lives. By understanding the needs and issues unique to special population students, you and your students can achieve amazing results and discover a new world of opportunities.

Strategies for Economically Disadvantaged, Single Parent, and Displaced Homemaker Students

Career Guidance

- To determine the appropriate level of career training, students need information on the financial requirements for living self-sufficiently in California. Visit www.insightcccd.org to find the Californians for Economic Security (CFES) financial need data for all California counties.
- Emphasize nontraditional careers that offer greater earning potential, particularly for females. For many males, nontraditional careers in areas such as health can offer greater career satisfaction in addition to high wages.
- Help displaced homemakers and students returning from absences in the labor market identify skills that translate into the workplace. For example, they may have skills in budgeting, scheduling, or conflict resolution.

Instructional Support

- Encourage tutoring or study groups for students experiencing difficulty.
- Help students with registration for subsequent terms to ensure continued enrollment.
- Provide instructors with training on giving feedback in respectful, sensitive ways.

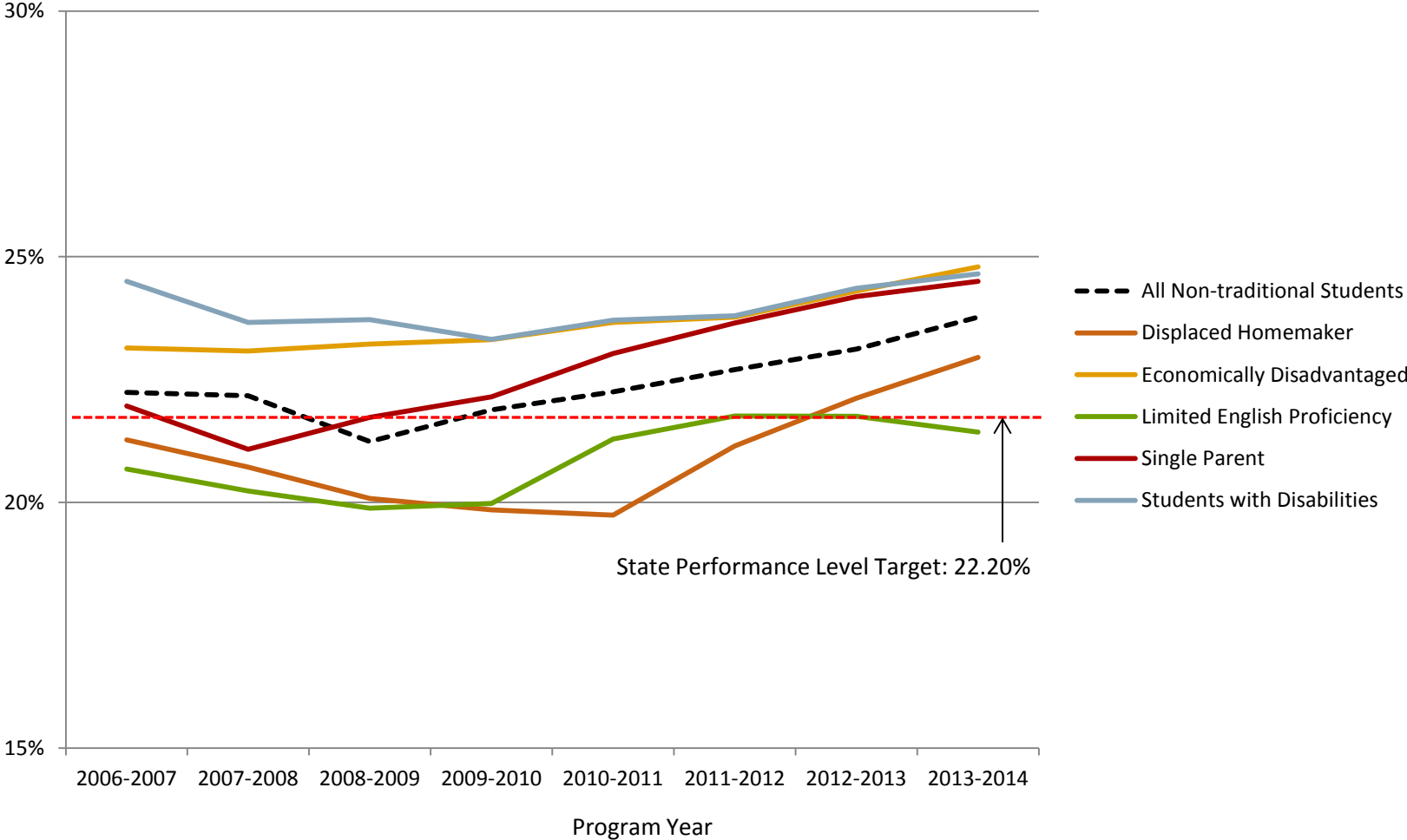
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We then addressed subsets of Special Population Students

- Data show that LEP students are lagging in many areas including nontraditional participation.

Perkins IV Core Indicator 5P1 – All TOP Codes

Nontraditional (underrepresented gender) student enrollment in, and completion of, CTE programs



Tools and Tips for Educators

Make a Difference for Limited English Proficient Students



Honor Diversity.
Accommodating
Limited English
Proficient (LEP)
students allows
them to function
successfully in
educational
programs.

You can make a real difference in a student's educational experience and future success, especially for those who are members of special populations, such as Limited English Proficient (LEP) students. Furthermore, schools that receive Perkins Career and Technical Education (CTE) funding must offer specialized programs and services to support the success of special population students. To help you serve your LEP students and develop activities that fulfill the Perkins requirements, this resource describes easy and effective tactics employed statewide and nationally. Please use these strategies to help your LEP students overcome barriers, stay on track to reach their CTE goals, and ultimately impact their lives.

Diversity in the California Community Colleges

The California Community Colleges are extremely diverse. For example, the student population is more than one-third (34%) Hispanic, 12% Asian, 8% African American, and has sizable numbers of Filipino, American Indian/Alaska Native, Pacific Islander, and multiple-race students. Over half of students are under age 25, over a quarter are between ages 25 and 39, and nearly a fifth are age 40 or older. California has more LEP students than any other state: nearly 40% of California's K-12 students are language minorities, and LEP students comprise an increasing proportion of postsecondary students as well. Even within the LEP population there is great diversity, both in country or culture of origin and recency of immigration. Broadly defined, there are three groups to which postsecondary LEP students tend to belong:

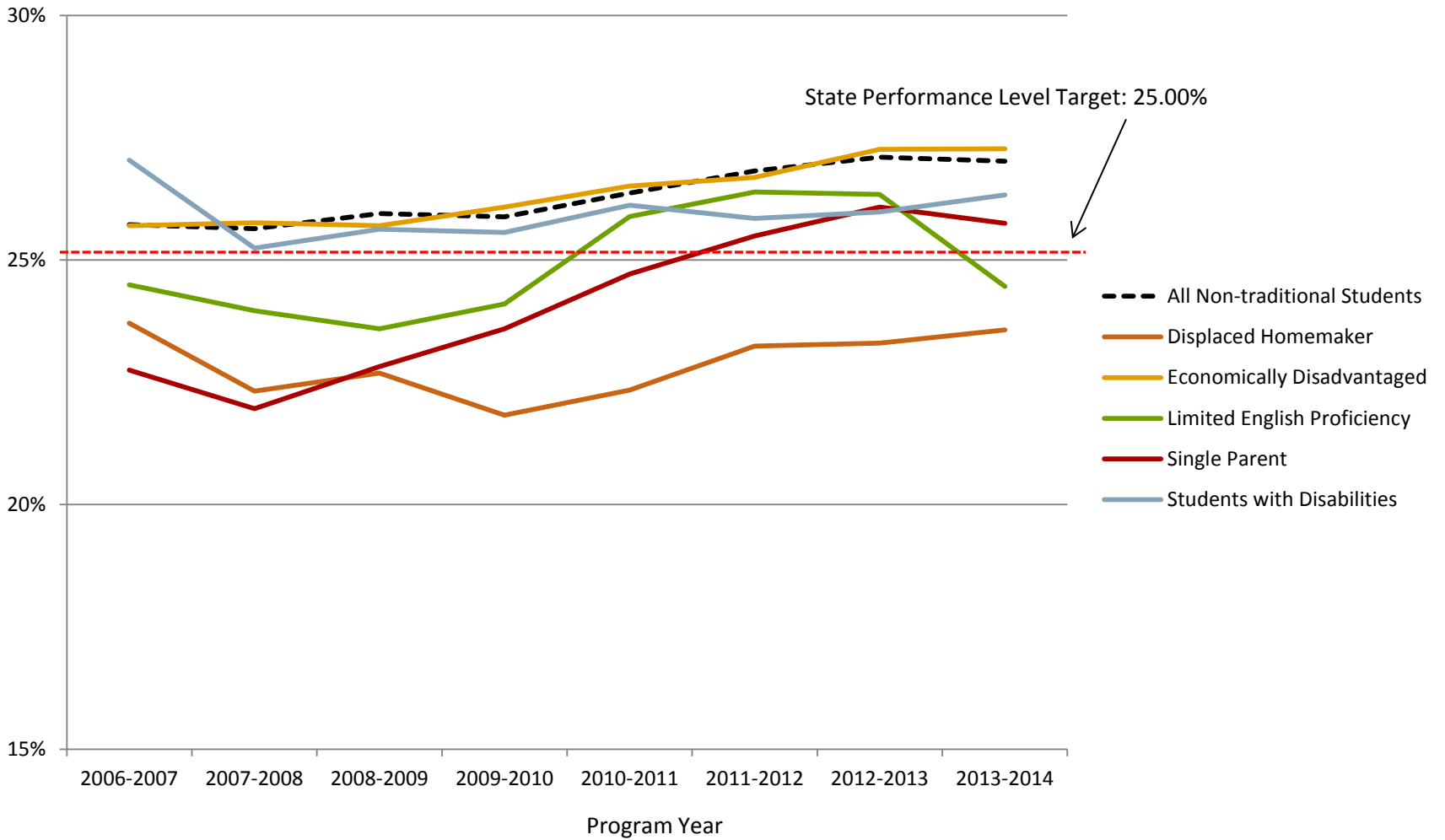
- **Long-term immigrants**, who were either born in the United States to immigrant families or immigrated at a young age. These students have received most of their education in the United States, yet may still face challenges with college-level oral or written work.
- **More recent immigrants**, who may have received some of their education in the United States, but are often more easily identified as LEP.
- **International students**, who may also struggle with English in academic endeavors and confront cultural challenges. The proportion of students who come from abroad to study in the United States varies greatly among the California Community College campuses.

Fortunately, the vast majority of the California Community College campuses offer English as a Second Language (ESL) classes. Many schools also provide Vocational English as a Second Language (VESL) classes. The strategies described below offer additional avenues for connecting with and teaching Limited English Proficient students.



- Data also show that almost all special population students are lagging at completing nontraditional programs

Perkins IV Core Indicator 5P2 – All TOP Codes
Students Completing Training Leading to Non-traditional Employment



Tools and Tips for Educators

Make a Difference for Nontraditional Students



You can make a difference in students' educational experience and success, especially for students training for careers nontraditional to their gender. Nontraditional students are identified as a special population group in the Perkins Career and Technical Education (CTE) Act.

Schools receiving Perkins funds must offer programs and services to support special population students, including nontraditional students. To serve your nontraditional students and fulfill the Perkins requirements, this resource describes effective tactics employed statewide and nationally. Use these strategies to recruit and retain nontraditional students so they may overcome barriers and reach their CTE goals.

Nontraditional Training Programs in California Community Colleges

The California Community Colleges offer a diversity of programs that are considered nontraditional. For women, these include animal science, architectural technology, environmental technology, business administration, information administration, information technology, computer networking, automotive technology, construction crafts, manufacturing, administration of justice, fire technology, and more.

For men, examples of nontraditional programs include office computer applications, veterinary technicians, desktop publishing, software applications, educational aides, medical laboratory technology, radiation therapy technicians, child development, dietetic technology, cosmetology, travel services and tourism, and others. (For a complete listing of nontraditional programs, see "California Community Colleges: Programs Classified as Nontraditional" posted at ccspecialpopulations.org/resources/Publications.htm and at jspac.org/nontraditional-occupations.)

Nontraditional jobs generally pay females 20-30% more than traditionally-female jobs, meaning that women in nontraditional fields will earn 150% more over the course of their careers. For men, nontraditional training can open new opportunities including high-wage management, business ownership, and school administration.

Furthermore, the California economy increasingly demands more college-educated workers in science, technology, engineering, and mathematics (STEM). These fields tend to be nontraditional for women. The California Community Colleges play a key role in providing well-trained workers in these fast-growing emerging markets, and in meeting the needs of STEM-businesses with well-trained students.

Women have made real inroads in many nontraditional fields: females compose 21% of drafters, 15% of network and computer systems administrators, 11% of surveying and mapping technicians, and 10% of computer hardware engineers. Fewer than one-in-ten women are construction managers (8% female), firefighters (5% female), construction helpers (4%), sheet metal workers (4%), carpenters (2%), electricians (2%), and automotive service technicians and mechanics (1%). Encouraging and supporting women to train in these fields will help them pursue successful futures.

This brochure is a joint project of the California Community College Industrial and Technology Education Collaborative and the California Community College Special Populations Collaborative.



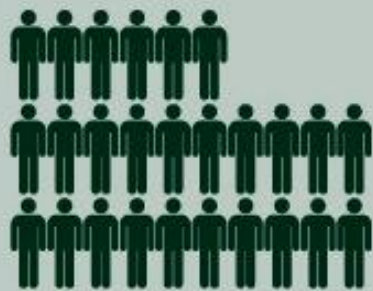
- More recently we've focused on STEM:
Science
Technology
Engineering &
Math
- National Data support the need for more Women in STEM



Previous STEM studies have neglected the many blue collar and technical jobs that require considerable STEM knowledge. But this study finds that

50%

of STEM jobs **do not require** a bachelor's degree. As a result, STEM knowledge plays a much larger role in our economy than previously thought:



There are

26 MILLION

STEM jobs in the U.S.



STEM jobs comprise

20%

of all U.S. jobs.

20%

10%

1850

2011

The share of jobs requiring STEM knowledge has

doubled

since the Industrial Revolution

How to Attract WOMEN to STEM Careers



A Review to Help Educators Attract and Retain Female STEM Students

The information that follows is based on a thorough literature review of factors that influence women's pursuit of STEM fields, with particular attention to psychological influences.

It discusses the importance of confidence and interest; self-efficacy; role models and stereotype threat; attracting and retaining faculty; classroom content; and building community.



There are many factors that influence women's pursuit of STEM fields

It is not females' cognitive abilities that are falling short in science, technology, engineering, and mathematics (STEM). At the elementary, middle, and high school levels, girls today are equally or more likely than boys to take science and math classes, and they earn slightly better grades in those classes. However, in early-adolescence girls begin to lose confidence in math and science despite their performance, representing a shift in attitudes as opposed to ability. At the community college level, women complete just two in every five science and engineering associate's degrees; as freshman at four-year colleges, about twice as many men as women plan to study STEM; and disparities are even more dramatic in the labor market.

Females' low representation in STEM fields is troubling given national calls for more STEM education in order to maintain a competitive edge in the global economy. Increasing women's representation in STEM fields would also support women's economic stability and parity; although women typically earn less than men regardless of field, occupational segregation accounts for the majority of America's gender wage gap. The California Community Colleges play a key role in providing well-trained workers for STEM-businesses, especially in fast-growing emerging markets.

There is also a movement to add "arts" to the equation (turning "STEM" to "STEAM"). Adding the art component responds to industry's need for creativity and innovation in STEM fields. A significant body of research also documents the relationship between involvement in the arts and superb science: great scientists are far more likely than the general public to practice or appreciate art, and research increasingly demonstrates how art education may benefit students more broadly.

Generate Interest and Confidence

Students' interest and sense of confidence in a field tend to feed one another. While females and males exhibit similar STEM performance into high school, females' interest and confidence in STEM begins to dwindle. Research suggests ways in which schools can counteract this trend:

- Among undergraduate engineering majors at a four-year university, **perceived respect from professors was the strongest predictor of females' confidence.**
- In the first year of college, women attributed their pursuit of STEM fields to enjoyment of science and math classes, helpful faculty, **awareness of science and engineering career opportunities**, and their ability to work independently.
- In the second year, persistence was associated with possessing good **advisor relationships**, feeling accepted within the department, and continuing to enjoy math classes.
- By the third year, community influences such as **positive experiences in student societies** and at conferences, mentor relationships, and continuing interest in classes were the primary determinants of retention.
- In the fourth year, **intention to work in engineering after graduation** also mattered.

And have drilled down to STEAM

- Adding the ARTS to the STEM curriculum

CONVERTING STEM TO STEAM

The Case for Science, Technology, Engineering, Arts, and Mathematics

"The game is changing. It isn't just about math and science anymore. It's about creativity, imagination, and, above all, innovation." *Business Week Magazine*

OR, MAYBE IT HAS ALWAYS BEEN THIS WAY, AND WE ARE SIMPLY REALIZING IT ANEW...

"Art is the queen of all sciences communicating knowledge to all the generations of the world." *Leonardo Da Vinci*

The initiative to turn "STEM to STEAM" adds art ("A") to our national effort to encourage careers in science, technology, engineering, and mathematics (STEM). By better integrating art education we may strengthen students' minds for design and innovation, and support wide-reaching learning and achievement. A growing body of research supports turning STEM to STEAM:

- The American economy thrives on creative innovation in STEM fields,
- Studies increasingly demonstrate how art education may benefit students more broadly, and
- It appears that our great scientists are more likely to practice or appreciate art.



STEAM and the Economy



There is striking evidence of the demand for more creativity and innovation in the American economy. In a recent survey, over four hundred employers reported they significantly value creativity and innovation and expect its importance to increase over time. Yet a majority of these employers found high school graduates to be "deficient" in creativity and innovation, and fewer than a quarter of employers considered college students to be "excellent" in creativity and innovation. Another report found that while educators and employers agree that creativity is increasingly important, fully eighty-five percent of employers seeking creative hires cannot find the applicants they seek.

"In addition to giving our children the science and math skills they need to compete in the new global context, we should also encourage the ability to think creatively that comes from a meaningful arts education."

—President Obama

Arts and the Brain

Both art and science are driven by observation, experimentation, discovery, collaboration, and innovation, and research suggests that art education may broadly benefit learning. For example, studies show that children randomly assigned to receive regular music instruction also improved related skills such as fine motor control; furthermore, brain structures changed for those receiving music instruction compared to those who did not.



"The similarities between how artists and scientists work far outweigh their stereotypical differences."

—John Maeda

President of the Rhode Island School of Design, which spearheaded the initiative to turn "STEM to STEAM"



Small Group Review the Products

New/Surprising Information?

Strategies the Might Work for You?

Report out



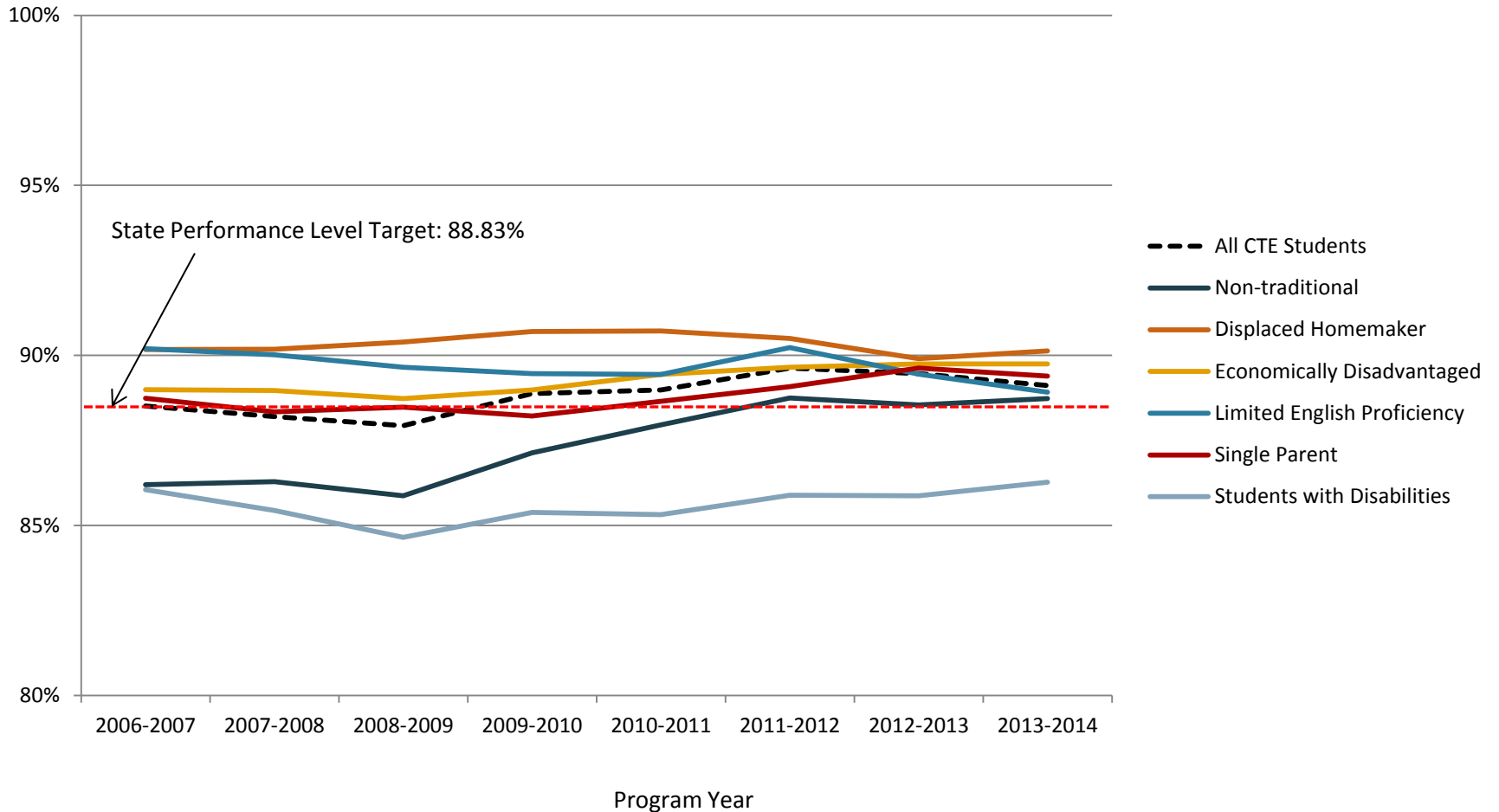
Next Up:

Meeting the Needs of Disabled Students

Soft Skills for all Special Populations

Perkins IV Core Indicator 1P1 - All TOP Codes

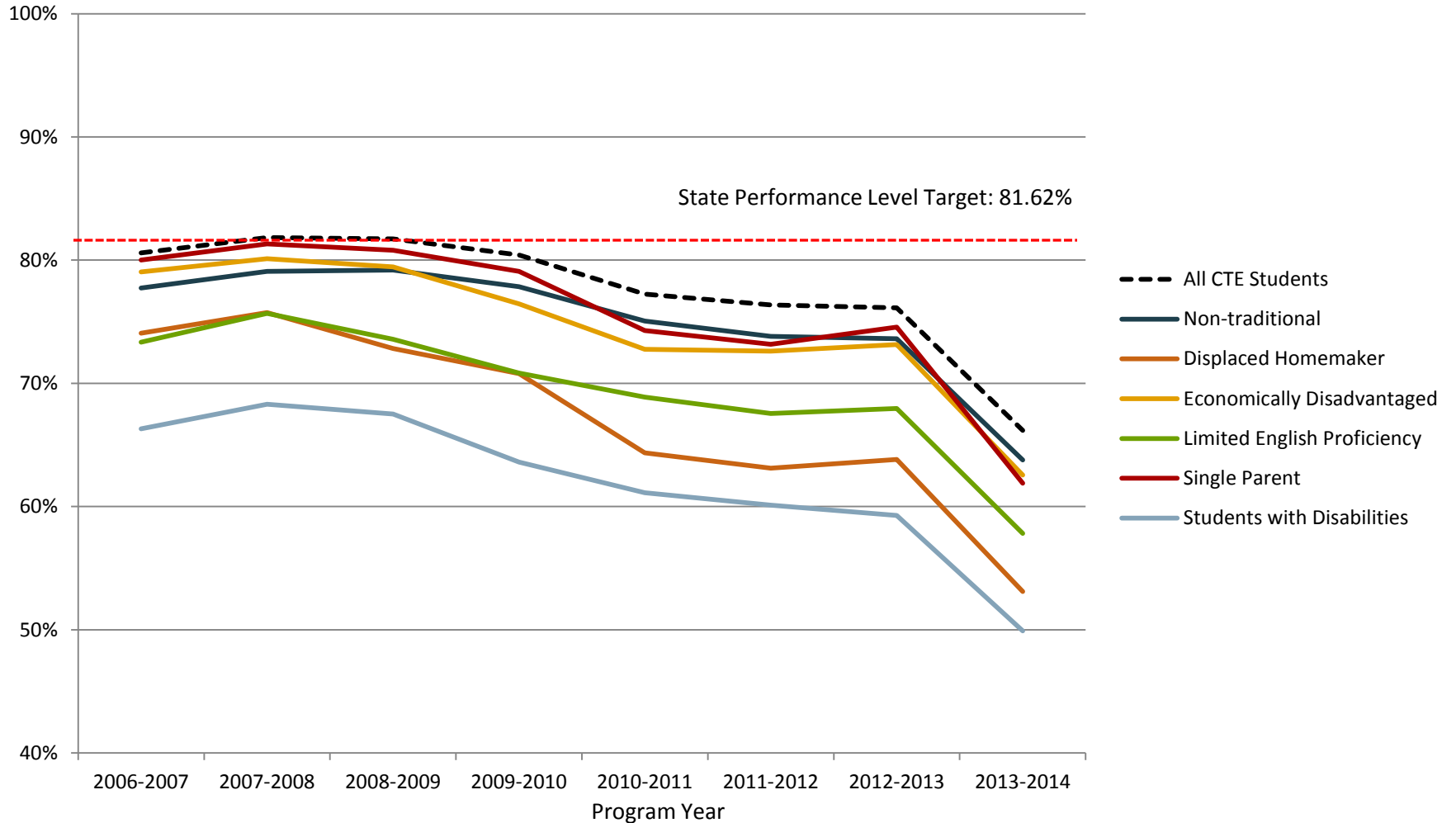
CTE concentrators earning a GPA of 2.0 or higher in CTE courses to assess technical skill attainment



CTE Concentrators are defined as students who has successfully completed a minimum threshold of 12 or more units of related coursework in a vocational or technical program area (defined as a two-digit TOP code) within the previous specified time period with at least one of the courses coded with a SAM priority code of A-C. The amount of time to reach this threshold of enrollments is limited to the most recent three years.

Perkins IV Core Indicator 4P1 - All TOP Codes

Student placement in military service or apprenticeship programs or placement or retention in employment, including placement in high skill, high wage, or high demand occupations or professions





How We Use the Products

Network with Existing Entities

- “Infiltration”
- Discipline Advisory Committees
- Conferences:
 - Statewide “Educating for Careers”
 - STEM
 - Joint Special Populations Advisory Committee

Strategies for reaching practitioners

- Conferences
- Workshops
- Website

Your suggestions

- How might these products be used in your setting? Other settings?

How obtain copies

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- www.jspac.org

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THANKS!

Additional Comments